U.S. ARMY
CAA-2012225

Center for Army Analysis

AFGHAN NATIONAL SECURITY FORCES (ANSF) LOGISTICS MANAGEMENT SYSTEM SUPPORT

MAY 2014

CENTER FOR ARMY ANALYSIS
6001 GOETHALS ROAD
FORT BELVOIR, VA 22060-5230

DISCLAIMER

The findings of this report are not to be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation. Comments or suggestions should be addressed to:

Director
Center for Army Analysis
ATTN: CSCA-OA
6001 Goethals Road
Fort Belvoir, VA 22060-5230

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED *(From –To)***
May 2014	Final	July 2012 – March 2013

4. TITLE AND SUBTITLE
Afghan National Security Forces (ANSF) Logistics Management System Support
ALMSS

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Mr. Abram A. Gross

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Center for Army Analysis
6001 Goethals Road
Fort Belvoir, VA 22060-5230

8. PERFORMING ORGANIZATION REPORT NUMBER

CAA-2012225

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

North Atlantic Treaty Organization (NATO) Training Mission Command – Afghanistan / Combined Security Transition Command – Afghanistan (NTM-A/CSTC-A)
ATTN: DCG-CSTC-A / DCG-SPT
Kabul, Afghanistan

10. SPONSOR/MONITOR'S ACRONYM(S)
NTM-A/CSTC-A, DCG-SPT

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Distribution Statement A: Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT
NTM-A/CSTC-A requested Center for Army Analysis' (CAA) assistance in reviewing and processing myriad data sources tracking equipment distribution to Afghan National Security Forces (ANSF). Currently, no centralized and authoritative data system exists to provide a common operating picture on the accountability of coalition provided ANSF materiel thus hindering leadership actions for both NATO and Government of the Islamic Republic of Afghanistan (GIRoA) forces. CAA provided reach-back support by processing submitted data records to provide an historic database to initialize an integrated and centralized database network being developed by forward elements among NTM-A/CSTC-A staff. CAA reach-back analysts worked with CAA forward deployed analysts to establish a current disposition of materiel by processing transmitted data from pertinent sources.

15. SUBJECT TERMS

Afghan National Security Forces, Logistics Tracking Databases, Equipment Accountability, Afghan Logistics Management System.

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			Mr. Russell Pritchard
Unclassified	Unclassified	Unclassified	UU	**22**	**19b. TELEPHONE NUMBER *(include area code)*** (703) 806-5421

Standard Form 298 (Rev. 8/98)

(THIS PAGE INTENTIONALLY LEFT BLANK)

AFGHAN NATIONAL SECURITY FORCES (ANSF) LOGISTICS MANAGEMENT SYSTEM SUPPORT

SUMMARY

THE PROJECT PURPOSE was to assist the North Atlantic Treaty Organization (NATO) Training Mission – Afghanistan (NTM-A) / Combined Security Transition Command – Afghanistan (CSTC-A) establish accountability of Afghan National Security Forces (ANSF) equipment that was provided by the United States (U.S.) and coalition nations. This was accomplished by processing data collected throughout the distribution effort to provide a current baseline of equipment accountability records.

THE PROJECT SPONSOR was COL Richard O'Donnell, NTM-A/CSTC-A, Deputy Commanding General for Support (DCG-SPT, COS).

THE PROJECT OBJECTIVES were to:

(1) Process data to establish the historic distribution of ANSF equipment.

(2) Develop a database for repository and transmission of processed data.

(3) Inform NTM-A/CSTC-A staff elements of data inconsistencies in support of their development of an integrated system for equipment tracking.

THE SCOPE OF THE PROJECT included data sources that capture equipment accountability of vehicles, weapons, and trucks acquired with Afghan Security Forces Funding (ASFF) and fielded to Afghan National Army and Police Units from January 2006 to January 2013.

THE MAIN ASSUMPTION was that the Operational Verification of Reliable Logistics Oversight Database (OVERLORD) identifies all equipment procured by ASFF and provided to ANSF.

THE PRINCIPAL FINDING was that while some level of accountability is achieved by data processing efforts, the lack of a clear vision for logistics management at the onset of the materiel distribution effort now necessitates increasingly extensive efforts to establish even a degraded level of resolution on the current disposition of equipment.

THE PRINCIPAL RECOMMENDATIONS are:

(1) Amend data collection standards and processes of contributing sources to better inform equipment accountability efforts.

(2) Continue refinement of the processed and transmitted dataset detailing the history of the distribution effort to increase accountability.

(3) Compile insights on the challenges and their solutions for logistics management in support of future contingency operations.

THE PROJECT EFFORT was led by Mr. Abram Gross.

COMMENTS AND QUESTIONS may be sent to the Director, Center for Army Analysis, ATTN: CSCA-OA, 6001 Goethals Road, Suite 102, Fort Belvoir, VA 22060-5230.

CONTENTS Page

FIGURES

(THIS PAGE INTENTIONALLY LEFT BLANK)

1 INTRODUCTION

1.1 Supporting Afghanistan's Development

The establishment of sustainable Afghan-led security forces is supported by U.S. strategy in Afghanistan. This is being accomplished by ongoing transitions of Afghanistan's security, political, and economic disposition. The International Security Assistance Force (ISAF) / United States Forces – Afghanistan (USFOR-A) is a four-star joint command that leads this endeavor by conducting operations to reduce the will of the insurgency as well as grow the capacity and capability of Afghan National Security Forces (ANSF). ISAF Joint Command (IJC) and NATO Training Mission – Afghanistan / Combined Security Transition Command – Afghanistan (NTM-A /CSTC-A) are subordinate headquarters that support ISAF. IJC conducts comprehensive operations to neutralize the insurgency while NTM-A/CSTC-A oversees the training and equipping of ANSF. Additionally, NTM-A/CSTC-A assists the Government of the Islamic Republic of Afghanistan (GIRoA) in developing military and civil service leaders required to sustain institutional capacity.

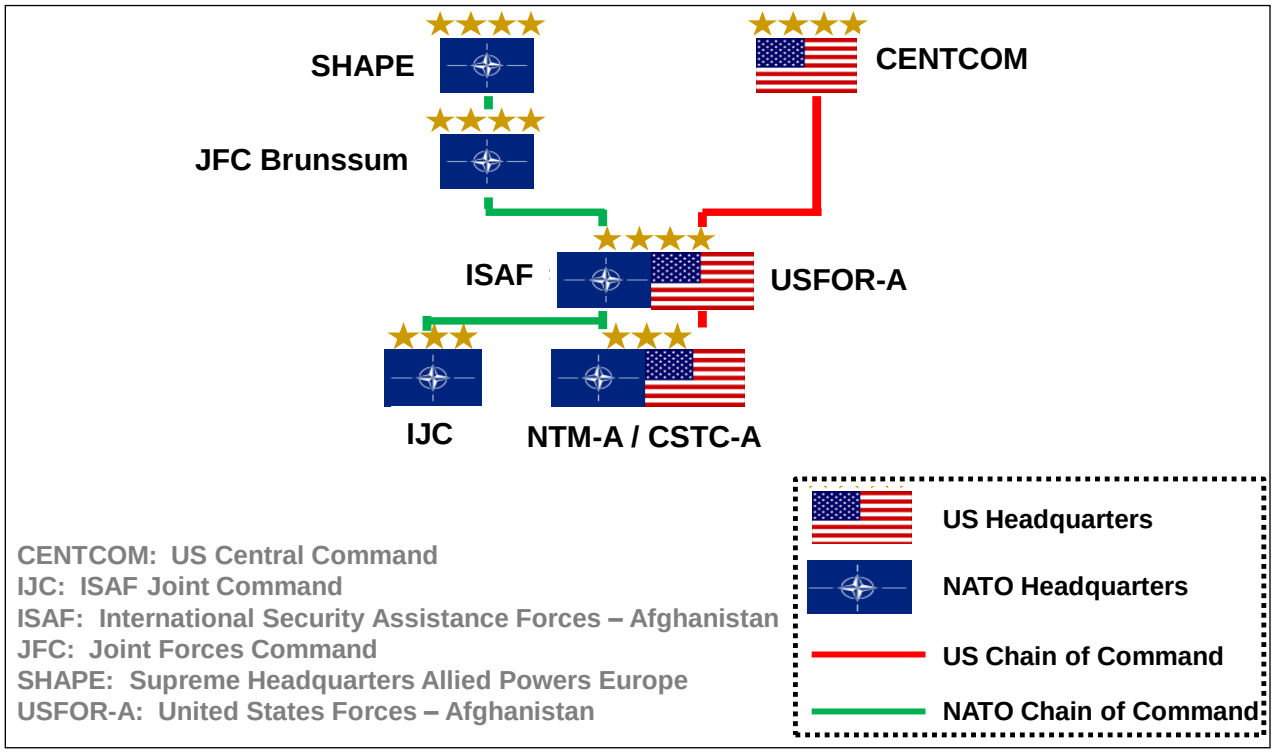

Figure 1. NTM-A/CSTC-A Mission.

Figure 1 depicts the command construct for U.S. and coalition forces operating in Afghanistan. All of these headquarters are located in Kabul, Afghanistan's capital. Establishment of a professional cohort of civil and military service members within the GIRoA is a primary objective of NTM-A/CSTC-A. This is increasingly emphasized with the anticipation of transitioning battlespace to, and encouraging self-autonomy of, Afghans by end of fiscal year (FY) 14. There is an operational requirement to develop an enduring sustainment capability for the ANSF. However, Afghanistan's institutional capacity has not matured commensurate with that of their operational forces. As reported in the 1230 Report to Congress dated December

2012, “a deliberate decision made when the plan for expanding the ANSF was formulated, the initial focus for the ANSF was building combat capability and leveraging ISAF enablers to support the ANSF”. Among the greatest challenges to Afghanistan’s self-autonomy is an insufficient logistics capacity. This is impeded by immature ANSF reporting systems in conjunction with persistent attrition of trained personnel to manage such systems.

1.2 Logistics Background

U.S. and coalition efforts support GIRoA in generating and sustaining a professional ANSF to combat the insurgency in Afghanistan. Equipping trained forces is a direct line of effort in support of this strategic objective. This is achieved through materiel contributions from a combination of coalition partners and international donors. CSTC-A (the U.S. facet of the headquarters) maintains records on U.S. materiel contributions destined for the ANSF which are provided by ANSF Security Forces Funding (ASFF), U.S. Title 10 funds. To ensure accountability, information of equipment delivered to Afghanistan’s national depots is maintained in the Operational Verification of Reliable Logistics Oversight Database (OVERLORD). Existing processes tracking distribution beyond this are fragmented or reliant on immature Afghan sustainment and accounting processes that are largely paper based. NTM-A/CSTC-A loses oversight on, and management of, data sources supporting logistics below national depot level, which are provided through contractor support.

Attempts at a clear and authoritative source of accountability have been hindered by high turnover, the magnitude of the distribution effort, and command reorganizations. This has resulted in the isolated and often redundant data collection processes tailored to varied staff sections’ individual responsibility rather than an enterprise solution. Consequently, there is currently no common understanding or consolidated picture of this information to record accountability or inform leadership decisions. Collectively, however, these myriad data sources provide some level of oversight of the equipment that has been procured for and transferred to the ANSF.

1.3 Request for Analytical Support

NTM-A/CSTC-A is leading a comprehensive effort to catalog and record the results of the distribution of Tashkil (the Afghan equivalent to the U.S. Military Table of Organization and Equipment) equipment provided to the ANSF. Development of a knowledge management system is also underway to track changes in materiel disposition. The goal of this endeavor is to establish accountability for vehicles, weapons, and radios. Establishment of current materiel fielding throughout ANSF will provide a baseline to initialize the knowledge management system under development. NTM-A/CSTC-A requested analytical support from the Center for Army Analysis (CAA) to undertake the first objective while NTM-A/CSTC-A staff elements would engage the latter.

CAA provides a responsive reach-back capability to deployed commands with a team of dedicated analysts, both deployed as well as based within the continental United States (CONUS). At the onset of this initiative, the 19th CAA deployed analyst to NTM-A/CSTC-A served as a conduit to coordinate the efforts of ANSF Logistics Management System (ALMS) reach-back support. CAA’s contribution is detailed throughout this report while ongoing development of the larger ALMS construct will provide the functionality to refine the accuracy of and track changes to ANSF materiel disposition.

2 HISTORICAL DATABASE

2.1 Contributing Data Sources

To produce an historic database, CSTC-A transmitted all data that captured the fielding of ANSF vehicles, weapons, and radios up to February 2013. These data reside across disparate sources, each providing accountability at one of several phases throughout the processes of delivering and equipping the ANSF. Figure 2 illustrates the general flow of equipment through these phases, which comprise the distribution effort at large.

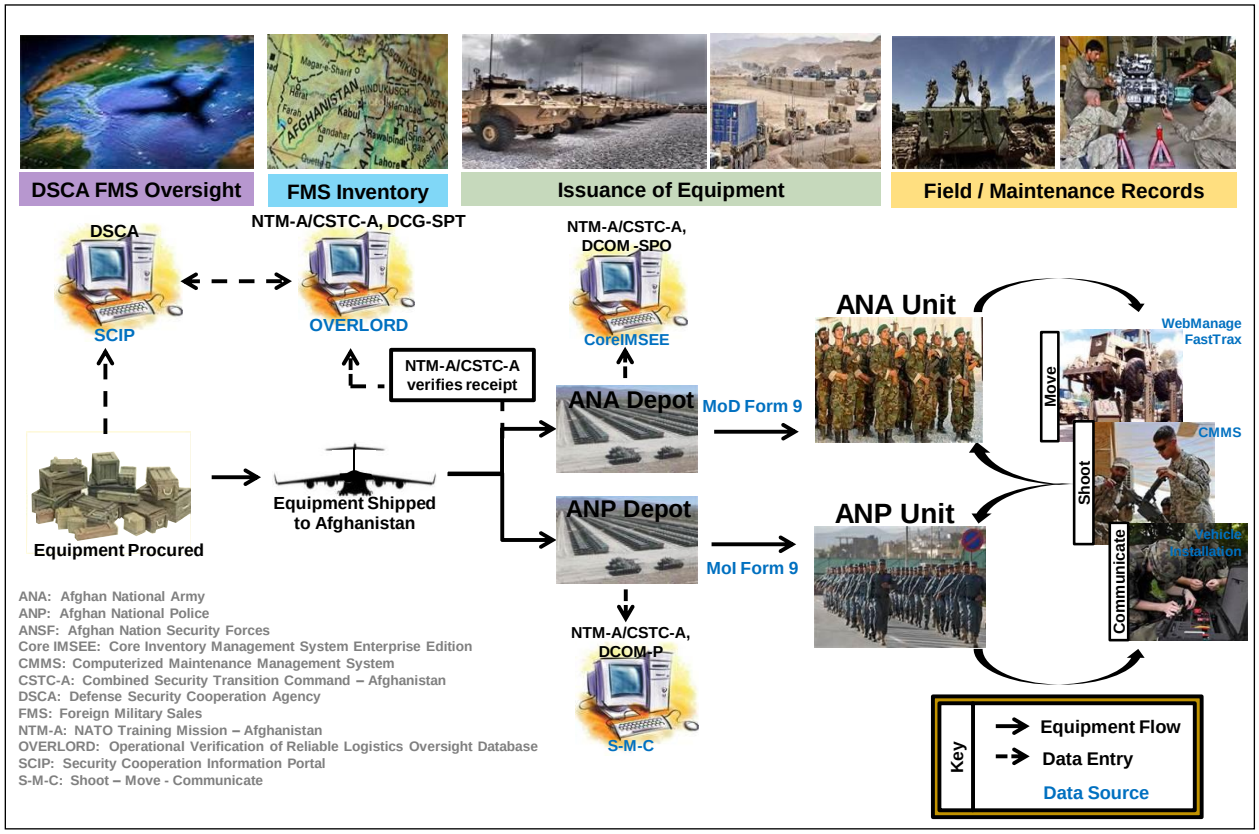

Figure 2. Flow and Tracking of U.S. Equipment Procured for ANSF.

When observed from left to right, Figure 2 depicts the chronological order of the logistics distribution effort in support of equipping the ANSF. Beginning with initial procurement and shipment to Afghanistan, materiel is then delivered to a national depot. After this, articles disseminate down a hierarchy of subsidiary depots or supply points and are ultimately issued to either an Afghan National Army (ANA) or Afghan National Police (ANP) unit. Observations by U.S. personnel after this are provided during maintenance activities or through inventory by units partnered with ANSF.

Figure 2 also illustrates data collection points that are associated with nodes in the supply chain; identified in blue text. The Defense Security Cooperation Agency (DSCA) catalogs all equipment procured for Foreign Military Sales (FMS) in the Security Cooperation Information Portal (SCIP). After equipment are delivered to Afghanistan, CSTC-A personnel inventory and then record all delivered equipment in OVERLORD. A list of these data is then submitted back

to DSCA to corroborate with records in SCIP or identify inconsistencies. Transfer to ANSF control occurs when equipment is delivered to an ANA or ANP national depot. Each transaction is recorded by Core Inventory Management System – Enterprise Edition (Core IMSEE) or Shoot-Move-Communicate (S-M-C) databases at ANA or ANP depots, respectively. A Form 9 is a standardized document that records all transfer(s) of ownership at and beyond a national depot. During issuance from depot, this form is generated by Core IMSEE or S-M-C and accompanies the equipment throughout the following supply system, providing a single document number to track requisitions. The information recorded on the Form 9 is used to update Core IMSEE and S-M-C records, although accountability beyond corps level is degraded by paper-based reporting practices. Contingent on equipment type, contracted maintenance support may then offer data on recorded accountability after issuance to the ANSF. WebManage and FasTrax record maintenance activities for vehicles while Computerized Maintenance Management System (CMMS) details weapons maintenance.

2.2 Data Processing

Currently, discrepancies between OVERLORD and SCIP are reconciled through field inventory procedures. Once operational, ALMS (the overarching knowledge management system) will assist in these inquiries by providing a more robust and responsive method of accountability. Field inventories will then serve to validate the accuracy of ALMS records and help focus remediation actions to ANSF echelons below corps to locate any missing article(s). However, CAA's effort did not include matching records back to SCIP. For this effort, OVERLORD provides the complete list of equipment for which the establishment of accountability is desired. The main assumption is that this database captures all U.S. provided equipment delivered to Afghanistan. These data define the denominator for measuring percent accountability established for vehicles, weapons, and radios.

Ideally, OVERLORD records should match the combined Core IMSEE and S-M-C record set but each operates independently and the latter two rely on the ANSF oversight and Form 9 processes. So while the data in OVERLORD provide a good understanding of the equipment that has been delivered to Afghan depots, a significant gap exists in accountability during and after transfer to ANSF control. To remedy this, CSTC-A is focused on processing and centralizing the actual transfer as documented on Form 9's, which would then detail issuance to the ANA at Corps level and to the ANP by zone (regional designation and counterpart to a Corps' area of responsibility).

Data generated during maintenance processes capture the most recent information on accountability while the equipment is under ANSF control. Required data fields to support the ALMS project include those that distinguish, for a given article, when and where it was observed as well as who was in possession of it at each stage of the distribution effort.

CSTC-A transmitted all supporting data sources that CAA then used to provide a current (as of February 2013) resolution of materiel disposition. This was provided through a generalized process of cleaning, combining, and reducing the dataset, which was then populated into a newly developed database. Substantial cleaning of all records was necessary to verify the integrity of data, amend duplicates and corrupted fields, identify inconsistent information, and standardize all records. The disparate datasets were then joined by developing relationships among them using unique identification of individual vehicles, weapons, and radios. After records from each source were matched, duplicate data fields were reduced. The resultant data were then populated

into an Access database for transmission. Additionally, inconsistencies that could not be resolved as well as progress updates were provided to CSTC-A to support concurrent ALMS development efforts. Figure 3 illustrates the schema for integration of enduring data sources.

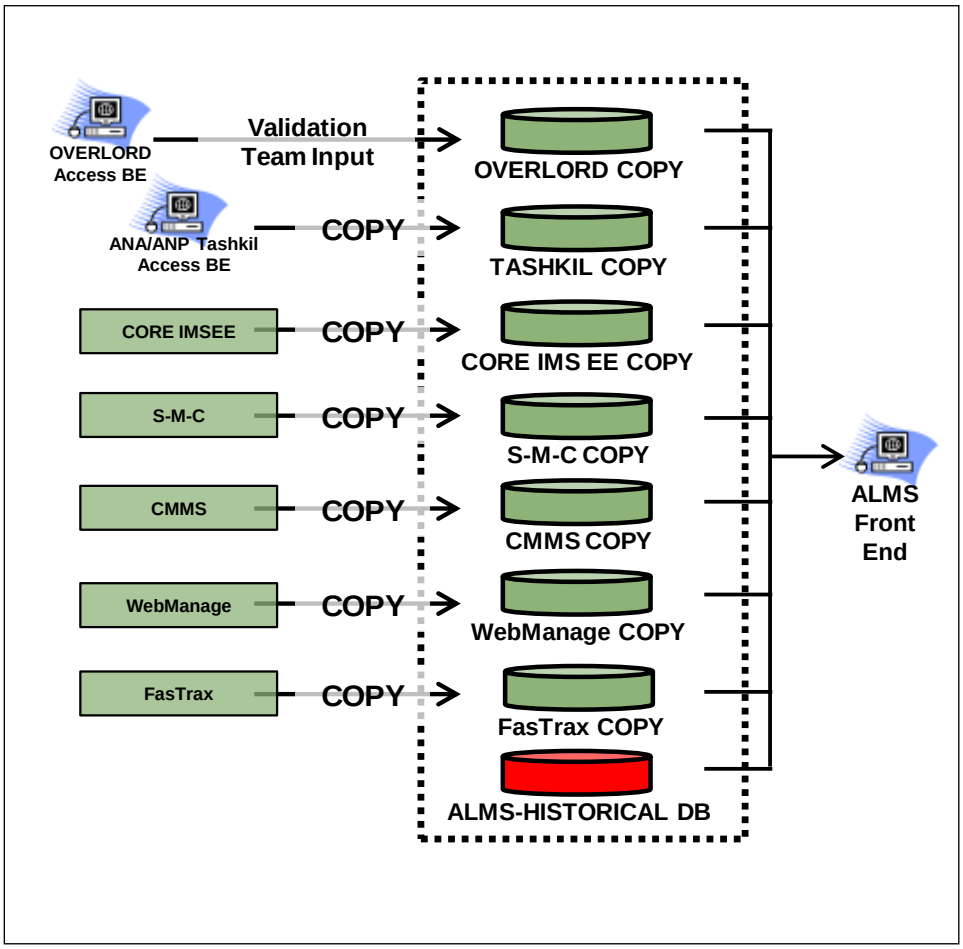

Figure 3. ALMS Construct Overview.

A copy of each data source will be periodically refreshed onto a common network and a graphical user interface will facilitate queries on selected fields. Data challenges encountered by CAA as well as intermittent submissions of the historical database helped CSTC-A focus efforts to amend data collection processes and management or, if unable to correct contributing sources, inform preprocessing requirements. In Figure 3, the historical database developed by CAA is depicted in red and shows that there is no plan to update the record set as with the other databases. When ALMS becomes operational, data collection will fill any gaps in the historical database, eventually rendering it obsolete to serve as only a repository of historic records. As the U.S. footprint diminishes in Afghanistan, these data collection processes will likely decline as well, requiring similar efforts to that discussed in this report to preserve the information within them.

(THIS PAGE INTENTIONALLY LEFT BLANK)

3 RESULTS

The goal of this reach-back support to ALMS was to establish accountability of ANSF materiel throughout the distribution effort. Ability to accomplish this was gauged by the percentage of fielded articles, given data from previously mentioned sources, for which accountability was established.

3.1 Interpretation of Processed Data

The historical database developed in Microsoft Access provides a baseline for equipment distribution. Figure 4 shows the summary tables for each equipment type evaluated (vehicles, weapons, and radios) with data fields containing information on the disposition of each item throughout stages of the fielding effort.

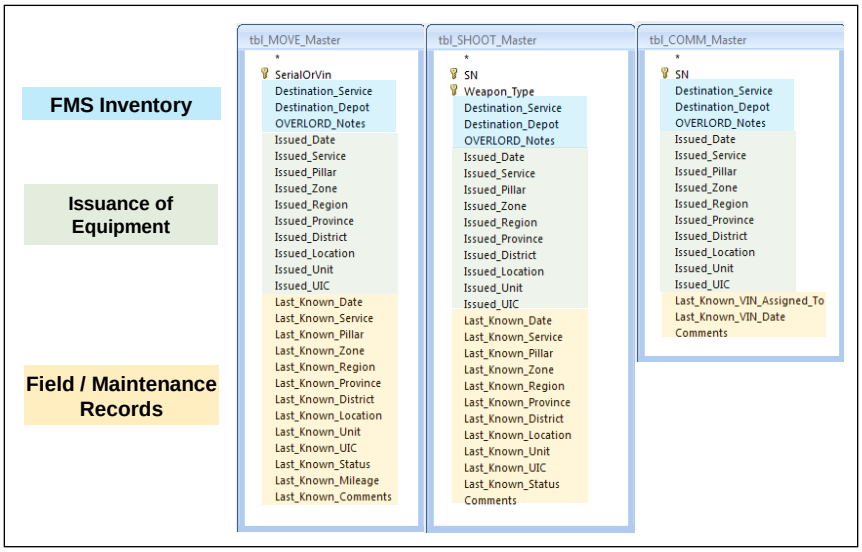

Figure 4. ALMS Historical Database Schema.

Highlighted in blue, OVERLORD provides a list of all unique articles with noted destination. Data from Core IMSEE and S-M-C are then used to determine to whom the equipment was issued and when the transaction occurred; highlighted in green. Lastly, subsequent field observations provided by inventory or maintenance are highlighted in yellow.

Recall the chronological order of the distribution of materiel contributions depicted in Figure 2; the data source provides some information on date of observation if it is otherwise not defined. The OVERLORD list defines all materiel under consideration and their intended destination, which, if no other information is available, provides the national depot where they were sent. If existent, issuance records show when these equipment were issued to the ANA or ANP at corps or regional levels, respectively. Regardless of the availability of matching issuance records, field observations assert their latest location. For this reason, accountability of fielded materiel provides the most utility in understanding their current disposition.

Additionally, all records of equipment field observations were retained to support quality assurance efforts by providing a history of sightings. This may then assist in identifying any outliers of an emerging trend for quality assurance once ALMS is operational. As an example, a vehicle consistently reported under the control of a specific ANA unit that is then reported with a

different unit would allow a system generated flag. This would help focus attention to a possible error in data entry or indicate lacking documentation to substantiate a change in ownership.

3.2 Established Accountability

Quantification of records that were matched across data sources characterizes the quality of the resulting dataset's ability to account for "move", "shoot", and "communicate" equipment distribution. Four possible conditions exist with respect to matching each OVERLORD record to subsequent accountability events, introduced in order of increasing fidelity: no matches identified, match to issuance record only, match to field record only, and match to both issuance and field records.

	Equipment Type	MOVE		SHOOT		COMM	
	Starting # (FMS Inventory)	75 K		468 K		176 K	
	Fidelity of Equipment Distribution	Count (#)	% of Total	Count (#)	% of Total	Count (#)	% of Total
Priority of Accountability	1) Issuance and Field Records	34 K	45%	48 K	10%	0	0%
	2) Field / Maintenance Records	23 K	30%	10 K	2%	0	0%
	3) Issuance Records	4 K	6%	173 K	37%	9 K	5%
	Total Equipment Accounted For	**61 K**	**81%**	**231 K**	**49%**	**9 K**	**5%**

Figure 5. Accountability Results.

The percent and fidelity of equipment accountability is summarized in Figure 5. CAA submitted the developed historical database to NTM-A/CSTC-A March 2013. Though not shown here, the historical database also included processed data that do not directly match any OVERLORD records. Further refinement to establish relationships between these records required expertise from database managers; therefore, deployed team members were better postured to improve the results shown above.

4 WAY AHEAD

NTM-A/CSTC-A is continuing to develop the integrated network. The historical database developed by CAA supports interim inquiries into ANSF equipment fielding in addition to a baseline that will initialize the system. Efforts at refining data management processes are ongoing, yet confounded by contract-imposed limitations as well as a declining U.S. footprint. Once operational, ALMS will assist planning and resource allocation decisions as well as reduce the vulnerability of those resources to theft, diversion, and waste. With the U.S. pledging continued support to GIRoA, stewardship of further contributions is a necessity as is developing Afghan leaders with the competencies and management tools required to sustain ANSF.

A large distribution effort without prepared knowledge management procedures led to fragmented data sources with isolated and often overlapping purposes, predominately dictated by operational needs only. Without predefined requirements tailored to inform leadership action at the highest levels, these ad hoc data processes offer little utility to strategic initiatives. The result is a diminished ability to accurately provide accountability on ANSF equipment and a considerably higher cost at attempts to now do so.

Insights accumulated during support to ALMS are compiled below as generalized lessons learned:

- Establish data requirements and internal controls to ensure data integrity at the onset of operations; invested work up front pays dividends in the work avoided later.
- Leverage insights from Operations Research-System Analysts (ORSA) regarding data collection and knowledge management processes throughout database development and managerial activities. This will yield a more inclusive and useful dataset that will improve operational assessments conducted by ORSAs and better inform relatable strategic decisions.
- Start small and grow big; provide the essential parameters for a scalable system/network and allow the end user (ultimately Afghans) to have input into its expansion early on. This will promote a sense of ownership and foster a receptive attitude towards its use and maintenance. Additionally, early exposure while the learning curve is gentle would assist in developing ANSF competencies required to manage complex logistic processes. Trained personnel could then increase their proficiency in concert with modular improvements and increased complexity to the system.
- To overcome discontinuity of efforts from U.S. turnover in theater, assign ultimate responsibility and ownership to a CONUS headquarters staff section that is tuned into national defense programming and budgeting processes; leverage existing Department of Defense expertise. Also, maintain in-theater logistics processes under the leadership of a common chain-of-command with clearly codified responsibilities; this will provide senior leaders power to enact changes where and when necessary.
- If contractor support is leveraged, clearly identify all requirements and internal controls to promote data standardization and integrity; allow room for adaptation to overcome any contingencies and needs for expansion.
- Enforce strict adherence to standards; provide Afghans incentives for complying and penalties (such as withholding or limiting subsequent contributions) for not.

(THIS PAGE INTENTIONALLY LEFT BLANK)

APPENDIX A PROJECT CONTRIBUTORS

A-1 PROJECT TEAM

Project Director: Mr. Abram Gross

Other Contributors: Mr. Neil De Lara, CPT Brian Harris, Ms. Christina Krause

A-2 PRODUCT REVIEWERS

Mr. Russell Pritchard, Quality Assurance

(THIS PAGE INTENTIONALLY LEFT BLANK)

APPENDIX B REQUEST FOR ANALYTICAL SUPPORT

REQUEST FOR ANALYTICAL SUPPORT

Performing Division: RA	***Account Number:*** 2012225	***FY:*** 2013
Acronym: ALMSS	***Start Date:*** 14-Aug-12	***Est Compl Date:*** 31-Jan-13
Title: ANSF Logistics Management System Support		
Category:		***Method:*** In-house
Sponsor (i.e., DCS-G3) Name: CSTC-A		***Office Symbol:*** NTM-A CJ-8
Phone: (318) 237-9575	***E-Mail:*** abram.a.gross@afghan.swa.smil.mil	***POC:*** Mr. Abe Gross
Resource Estimates:	***a. Estimated PSM:*** 3	***b. Estimated Funds:***
Models to be Used:	***Product:*** Database Support	

Description/Abstract:
NTM-A has identified many isolated databases and spreadsheets being used to track acountability of Afghanistan Security Forces Fund (ASFF) provided equipment. There is currently no common or consolidated picture of this information to record accountability or to inform leadership decisions. NTM-A has requested CAA's assistance in creating the database framework to support this logistics management effort.

Study Director/POC Signature:	***Phone:*** 703-806-5172
Study Director/POC: Mr. Abram A Gross	

PART 2

Background/Statement of Problem:
NTM-A requested CAA's assistance in reviewing different logistics tracking databases to create a single database framework to be used as a common operating picture throughout theater. The consolidated database needs to support tracking US supplied equipment information as they are procured to the ANSF, where/what unit the equipment were assigned to, and what equipment are on-hand vs authorized (unit resolution is ideal). The Afghans will ultimately be the end-users of the database.

Scope:
Review and combine about 8 databases that track what equipment were procured by ASFF and issued to ANSF units, starting with the Overlord database, which uses shipping documents to track equipment brought into theater.
By 1 JAN 13, NTM-A wants a structure in place to be used going forward to track all the required logistics data.
Once a structure is in place, the next step is to incorporate previous records into the database.

Issues:
N/A

Milestones:
21 SEP 12 - database will record equipment brought into theater. 3 OCT 12 - database will record which corps the equipment were assigned to. 26 OCT 12 - database will record which units the equipment were assigned to for all of ANA. 12 DEC 12 - database framework will support ANP equipment tracking at the unit level. 1 JAN 13 - Complete database hand-off to sponsor.

Signature	***CAA Division Chief Signature:***	***Date***
	CAA Division Chief Name: COL Garrett D Heath	
	Sponsor Concurrence Signature:	***Date***
	Sponsor Name (COL/DA Div Chief/GO/SES): COL O'Donnell	

Print Date: 26-Aug-13

(THIS PAGE INTENTIONALLY LEFT BLANK)